

FOCUS

U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy

August 2002

Equipment sizing and operating decisions are often complicated at combined cooling, heating, and power plants, and this was certainly the case at the Navy Medical Center CEP.

Navy Medical Center Uses Structured Analytical Approach to Renovate Central Energy Plant

At the request of the Department of the Navy Public Works Center, San Diego, California, and FEMP's Technical Assistance Program, DOE's Pacific Northwest National Laboratory evaluated the economic sizing and operation of the central energy plant (CEP) equipment at the Navy Medical Center in San Diego.

The Navy operates the CEP to provide cooling, heating, and electric power to the Medical Center. With aging equipment, uncertain loads, and volatile energy prices, the Navy was facing critical issues regarding replacement equipment sizing and operating strategy for all equipment at its facility.

Major existing equipment at the Navy Medical Center CEP includes the following:

- three 800-kilowatt turbine generators with heat recovery steam generators (HRSGs);
- one 800-ton single-stage absorption chiller;
- two 800-ton electric centrifugal chillers;
- one 1,200-ton electric centrifugal chiller;
- three 25,000-pounds-per-hour boilers; and
- four 1,200-ton cooling towers.

The three turbine generator HRSG sets were to be replaced with similar equipment. The 800-ton absorption and electric centrifugal chillers were to be replaced with two double-effect absorption chillers. The immediate issue for the Navy was to determine the optimum sizes for the new equipment. Of equal importance were the optimum equipment operating strategies for the renovated CEP.

Equipment sizing and operating decisions are often complicated at combined cooling, heating, and power plants, and this was certainly the case at the Navy Medical Center CEP. Electricity can either be self-generated and/or purchased from the grid. Steam can be provided from the boilers and/or the gas turbine HRSGs. Chilled water can be

IN THIS ISSUE

- Energy Secretary Abraham Marks Anniversary of Standby Power Initiative – p. 3
- The Presidio of San Francisco Installs Energy Monitoring and Control System – p. 4
- FEMP's Industrial Facilities Program: Helping Agencies Achieve EO 13123 Goals for Industrial Facilities – p. 9
- National Park Service's Assateague Island National Seashore Project a Model of Sustainable Design – p. 10
- Update on Facility Energy Usage Tracking and Accounting Software – p. 20
- Rooftop Air Conditioner Update: Technology Procurement Winners Available for Purchase – p. 23
- Energy Awareness Month Marks Return of Annual Awards Programs – p. 28

... and more!

continued on page 8



Beth Shearer
FEMP Director

Secretary of Energy
Spencer Abraham

**Assistant Secretary,
Office of Energy Efficiency
and Renewable Energy**
David K. Garman

FEMP Focus Editor
Annie Haskins

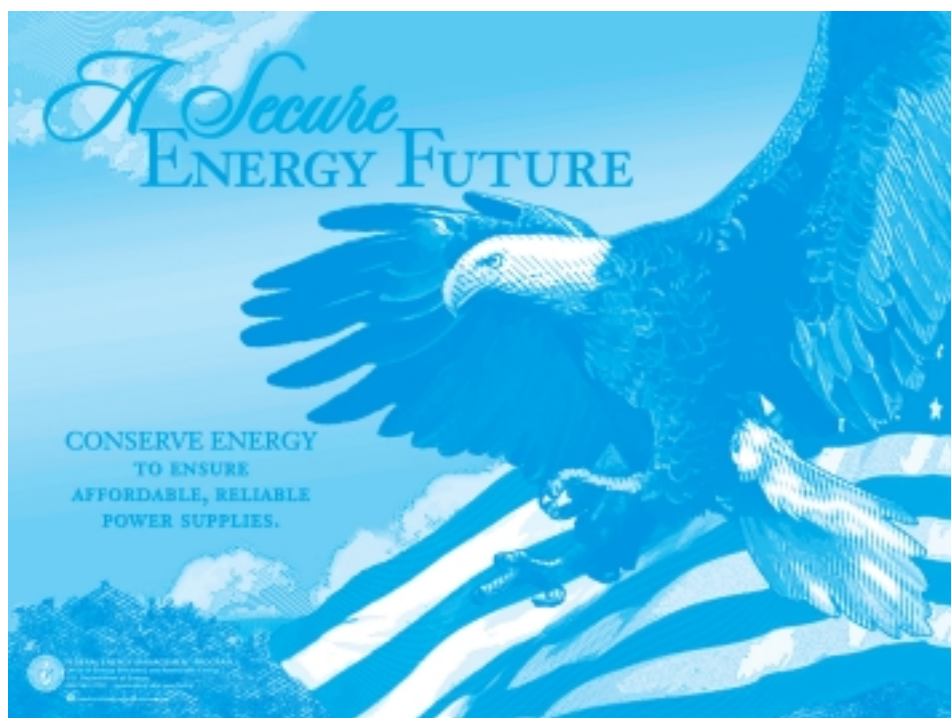
Under the Magnifying Glass

Chesapeake Bay Foundation's Philip Merrill Environmental Center, conference pavilion. The facility's high-performance features include solar water heaters, operable and clerestory windows, and rainwater cisterns. (See article on page 13.)

Energy Awareness Month Approaches

It's time to get ready for Energy Awareness Month—October 2002. FEMP's theme this year is "A Secure Energy Future—Conserve Energy To Ensure Affordable, Reliable Power Supplies." We hope that you will help spread this important message during Energy Awareness Month. To assist you, FEMP's Outreach Program has energy awareness materials including the new Energy Awareness Month poster with this year's theme (shown below). To obtain your copy of this and other outreach materials, including FEMP's new outreach guide *Creating An Energy Awareness Program*, call 1-800-363-EREC or visit www.eren.doe.gov/femp/ordermaterials.html. (For more information on FEMP's new outreach guide, please see page 19.) Also, please let FEMP Focus readers know about your Energy Awareness Month activities by submitting your project descriptions to Annie Haskins at annie.haskins@ee.doe.gov.

Available Now



To obtain your copy of this Energy Awareness Month poster, call 1-800-363-EREC or visit www.eren.doe.gov/femp/ordermaterials.html.

Disclaimer

The FEMP Focus is sponsored by the United States Department of Energy, Office of Federal Energy Management Programs. Neither the United States Government nor any agency or contractor thereof, nor any of their employees, makes any warranty, express or implied, or assumes any liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, mark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency or contractor thereof.

Energy Secretary Abraham Marks Anniversary of Standby Power Initiative

DOE issued a press release marking the 1-year anniversary of Executive Order 13221 and noting significant energy and cost savings that will be realized from implementation of the Order.

According to the DOE press release, the Order, signed by President Bush on July 31, 2001, has resulted in commitments by major manufacturers to significantly redesign products sold to the general public. “The effort is a prime example of how President Bush has directed the Federal government to lead by example when it comes to saving energy,” said Energy Secretary Abraham. “Public/private partnerships like this one can bring about real change that benefits all consumers and our nation. These types of innovations save energy without sacrificing the effectiveness of our products.”

Executive Order 13221, “Energy Efficient Standby Power Devices,” directs the Federal government to purchase electronic devices such as computers and cell phones that use minimal standby power to reduce unnecessary electrical consumption and save taxpayer dollars. Standby power refers to the electricity used when products are switched off or not

performing their primary purpose. Many products consume between 4 and 7 watts of electricity—or more—even when they appear to

be off. Products that use standby power include cell phones; some desktop telephones; computers and monitors; computer printers; fax machines; copiers; microwave ovens; appliances with electronic controls, keypads, or clock displays; TVs and VCRs; rechargeable battery-powered tools; and air conditioners (with remote controls).

According to DOE estimates, as existing products and consumer electronics are replaced with low standby power products during the next 6 years, U.S. consumers will save approximately \$500 million in cumulative energy cost savings and enough electricity to power 630,000 homes for 1 year. As a result of the President’s standby power initiative, DOE estimates that the Federal government will save an estimated \$25 million in energy costs during the next 6 years and will save enough electricity to power about 40,000 homes.

The Executive Order directed FEMP, in collaboration with the General Services Administration, the Defense Logistics Agency, the EPA/DOE ENERGY STAR® program, and major industry manufacturers to identify energy efficient products that use minimal standby power. FEMP sought input from numerous product manufacturers, Federal agencies, and other stakeholders to develop appropriate product categories as well as testing and certification guidelines. During this first year of implementation, FEMP focused particular attention on office products and consumer electronics—products bought in large quantities by Federal agencies.

To help agencies identify more energy efficient products, FEMP developed recommended standby power levels for a variety of product categories, including computers, monitors, printers, faxes, copiers, and TVs. Visit the FEMP web site at www.eren.doe.gov/femp/resources/standby_power.html to review a list of products and their corresponding standby power levels. Manufacturers are encouraged to submit additional data on the standby power levels of their products to this continuously updated FEMP database. FEMP is also working with the Defense Logistics Agency and the General Services Administration to integrate standby power product data into their electronic and printed catalogs.

For more information, see FEMP’s Standby Power web site at www.eren.doe.gov/femp/resources/standby_power.html. For additional information, please contact Alison Thomas of FEMP at 202-586-2099 or alison.thomas@ee.doe.gov.

Standby Power



The Presidio of San Francisco Installs Energy Monitoring and Control System

Nestled between San Francisco Bay and the Pacific Ocean, the Presidio of San Francisco is situated at the south end of the Golden Gate Bridge, just west of the city. For nearly 220 years, the Presidio was used as a military garrison successively by three powers—first Spain, then Mexico, and finally, the United States. This rich past is reflected in the site's incomparable collection of historic architecture and its stunning forest and landscaped features. A showcase of military architectural styles dating from before the Civil War, the Presidio is home to nearly 800 buildings, 470 of which are considered historic. The Presidio was declared a National Historic Landmark in 1962.

The Presidio was slated for closure as a military base in 1989 and its jurisdiction transferred from the U.S. Army to the National Park Service in 1994. With 1,480 acres of parklands, distinctive historic features, rare ecological characteristics, and spectacular vistas, the Presidio is a unique national park site. Given its legacy as a military post, the

Presidio's infrastructure systems can be likened to those of a small city. The park has its own police and fire services, and an extensive infrastructure including a telecommunications system, 25 miles of roadways, a water treatment plant and water distribution system, a high voltage distribution system, a sanitary sewer system, and a storm sewer system.

Because of the complexities of maintaining the Presidio's buildings and infrastructure, in 1996 Congress established The Presidio Trust ("Trust"), a Federal government corporation charged with managing the interior 80 percent of the Presidio's lands, including nearly all of its buildings. The National Park Service manages the Presidio's coastal areas. The Trust's mission is to preserve and enhance the cultural, natural, scenic, and recreational resources of the Presidio for the American public. In 2013, taxpayer support for the Presidio will end, and the park's operation and continued preservation must be funded by revenues generated by the Trust, principally by leasing the Presidio's rehabilitated historic

and non-historic buildings as homes and workplaces. Given both the Trust's preservation and financial self-sufficiency objectives, responsible energy use and energy-efficient technologies are important to the Trust's daily maintenance and operations of the Presidio.

Description of the Energy Monitoring and Control System

As Utilities and Engineering Manager for the Presidio Trust, Jim Kelly tracks the utility usage (electricity, gas, and water) in more than 1,100 residential units and 100 non-residential buildings. With the help of the Trust's staff Energy Monitoring and Control System's (EMCS's) administrator, Minh Pham, and the invaluable assistance of John Wunderlich of DOE's Lawrence Berkeley National Laboratory and Andy Walker of DOE's National Renewable Energy Laboratory, the Trust has installed the backbone of an EMCS provided by Johnson Controls Inc. to make the job easier.

After advertising for a comprehensive EMCS in 1999, the Trust selected Johnson Controls to design and install an EMCS that would be compatible with the historic resources and landscape of the Presidio. Because many of the buildings at the Presidio are separated by more than a mile—and the Presidio has several archeologically sensitive sites—installation of a new high-speed communication infrastructure was infeasible. Instead, the Trust opted to integrate these buildings by connecting



Responsible energy use and energy-efficient technologies are important to the Presidio Trust's maintenance and operations of the Presidio of San Francisco.

continued on next page

THE PRESIDIO OF SAN FRANCISCO INSTALLS ENERGY MONITORING AND CONTROL SYSTEM

(continued from previous page)

the existing copper-wire phone system to a central operator workstation. To date, the EMCS is connected to more than 80 non-residential units, and performs real-time metering of the Presidio's three incoming 12 kilovolt feeds.

The core of the EMCS is a Johnson Controls Metasys®, which connects to various application specific control (ASC) devices including DX-9100s, variable-air-volume controllers, air handling unit controllers, Veris metering modules, and Onicon Btu metering modules. These disparate devices are linked using hard wire, telephone circuits, and modem arrangements, and they are all connected through the Trust's integrated communications network using TCP/IP protocols.

Each ASC is programmed to perform its particular building control function and operate regardless of its connection to the central monitoring and programming workstations. The individual devices monitor and control building processes and energy uses. At the Presidio, the controls are typically based on time of use as well as client and process requirements.

This EMCS arrangement allows the system to adapt to the diverse requirements of the Presidio. Some buildings have minimal EMCS requirements, needing only boiler controls and submetering of electric and water consumption. Others, like the Presidio's Officers' Club, which has been upgraded to host museum-quality exhibitions, require complicated systems

that balance inside and outside air temperature and humidity, heating systems, electrical submetering, and a security system.

Benefits of the EMCS

One of the benefits of the EMCS is that energy-consuming equipment can be both monitored and controlled automatically. There are many criteria by which energy-consuming equipment can be controlled, including: time of use, outside air temperature, and user occupancy. When energy-consuming equipment is not needed, the EMCS can turn off or slow down the equipment's operation. This conserves energy, minimizes maintenance requirements, and prolongs the equipment's life.

Another important benefit of the EMCS is the ability to perform submetering of electric, water, and gas usage for the Trust's non-residential tenants. Using an EMCS to provide online energy use and run-time data can be an effective tool for energy billing—and for providing feedback to energy users, enabling them to monitor and control their own consumption based on quantifiable data.

Challenges

The installation of any system as vast and comprehensive as the Presidio's is bound to encounter a few challenges. John Wunderlich, staff engineer at LBNL, has been working with the Presidio staff through a FEMP design assistance grant to overcome these hurdles and bring the system online.

One of the initial challenges came to light after approximately 30 buildings were brought online. Each of these buildings communicated to the operator workstation by processing data through a modem, sending it on to a network control module located at the operator workstation, and then downloading the information to the operator workstation. Since communication via the modem is much slower than a typical modem connection, there was congestion at the network control module, and the Trust would receive nearly 200 off-line messages a day. At Wunderlich's suggestion, this problem is being addressed by developing EMCS "hubs" at three remote buildings, each of which houses individual network control modules that communicate with the central operator workstation via existing fiber optic lines. With these measures, off-line messages have been practically eliminated.

The most interesting aspect of the EMCS submetering project is the unique integration of the standard, off-the-shelf Johnson Controls Metasys® system with the Trust's database and information technology. The database analysis function that will power the Internet interface was completed by a team of engineers from LBNL and the Presidio Trust at minimum expense, using readily-available data analysis software.

continued on page 6

THE PRESIDIO OF SAN FRANCISCO INSTALLS ENERGY MONITORING AND CONTROL SYSTEM

(continued from page 5)

Future Possibilities for the EMCS

The Presidio Trust anticipates continuing to develop its EMCS as buildings are rehabilitated or as new technology becomes available. Some new EMCS applications that the Trust and LBNL are currently working on include:

- **Solar Photovoltaic (PV) Pilot Project** – Due to the microclimates within the Presidio, the Trust must determine the most effective location for photovoltaic power generation. To this end, the Trust is currently installing a 5 kilowatt PV system, the output of which will be monitored by the EMCS and analyzed in tandem with solar radiance meters installed at the PV array and at various other buildings. The data will show power output versus solar radiance, and will show which areas in the Presidio would most benefit from PV power.
- **Micro-Cogeneration** – In response to the recent California energy crunch and Presidential directive, the Presidio Trust has initiated a pilot project to evaluate the feasibility of using highly efficient micro-cogeneration as an alternative energy source. The operation of these micro-cogeneration units would be controlled by criteria such as time of use, outside air temperature, heat demand, price of electricity, and price of gas. The Trust is working with LBNL and FEMP to evaluate how best to integrate the Metasys® system with possible micro-cogeneration operation.

- **Metering of Natural Gas Consumption** – The Trust is currently working with PG&E on direct digital monitoring of gas meters at select Presidio buildings. This metering system would tie into the EMCS, and the resulting data would be made available to tenants in the same format as electrical metering. The real-time metering of natural gas would allow the Trust and tenants to monitor, and thereby efficiently control, a building's total energy consumption.
- **Continue Installation of the EMCS as Planned** – A continuing aspect of the Trust's energy management is to design and install additional controls in all online buildings to improve their energy efficiency.

With innovative sustainable technologies, the Presidio remains a well-preserved historical tribute to another era and a model of 21st century ingenuity.

For more information on the energy management system at the Presidio of San Francisco, please contact Jim Kelly of the Presidio Trust at jkelly@presidiotrust.gov.

Useful Links for Technical Assistance & Sustainable Design Information

Building Commissioning Guide
www.eren.doe.gov/femp/techassist/bldgcomgd.html

ENERGY STAR® Label for Buildings
www.eren.doe.gov/femp/techassist/energy_star_bldgs.html

EPA Green Building Web Site
www.epa.gov/greenbuilding/

FEMP SAVEnergy Program Overview
www.eren.doe.gov/femp/techassist/savenergyprog.html

Laboratories for the 21st Century
www.eren.doe.gov/femp/techassist/labs21.html

Northeast Sustainable Energy Association
www.nesca.org

Office of the Federal Environmental Executive
www.ofee.gov

Sustainable Buildings Industry Council
www.sbicouncil.org

U.S. Green Building Council
www.usgbc.org/

Whole Building Design Guide
www.wbdg.org/index.asp

DOE's Germantown Facility Upgrades to Energy-Efficient Distribution Transformers

Operating 24 hours a day, 7 days per week, distribution transformers tend to be a building's "behind the scenes" electrical energy hog. Transformers provide electrical power (at the proper voltage) for all other electrical equipment and plug-in devices found in a building including lighting, office computers and peripherals, air conditioning, appliances, vending machines, and a wide range of specialized equipment. Transformers have no moving parts and typically last 35 years or more, rarely requiring any attention or maintenance. However, their performance does deteriorate with time so they eventually need to be replaced, as was recently the case at DOE's facility in Germantown, Maryland.

The original DOE Germantown building, completed in 1958, provides office space for approximately 2,000 DOE personnel. The facility includes a large auditorium, a cafeteria, and a computer center. DOE, the facility tenant, and the General Services Administration (GSA), the owner, have been upgrading the facility to improve operating conditions and energy efficiency. The original distribution transformers in the building were nearing the end of their useful lives so GSA initiated a project in the late-1990s to replace the facility's aging transformers. A total of 53 transformers were identified for replacement, at a cost of \$360,000.

Following a suggestion from FEMP, DOE's Mike Shincovich, an engineer with the Engineering and Facilities Division, recognized transformer replacement as a possible energy-saving opportunity. Shincovich's preliminary analysis revealed that more efficient transformers would reduce DOE's electricity costs and would readily meet the Federal government's life-cycle cost effectiveness criteria set forth in Executive Order 13123 and CFR 48 Part 23. He requested that GSA specify high-efficiency units in the project's request for proposals. Shincovich requested that the efficiency levels for the distribution transformers meet those set forth in FEMP's series of product-efficiency recommendations, which provide efficiency criteria for products in the top 25th percentile of efficiency and/or ENERGY STAR® compliant products. These efficiency recommendations are based on the National Electrical Manufacturers Association Standard TP-1-1996 *Guide for Determining Energy Efficiency for Distribution Transformers*. This

recommendation, along with FEMP's 40 other recommendations, can be downloaded from FEMP's Buying Energy Efficient Products web site at www.eren.doe.gov/femp/procurement/begin.html.

Because TP-1-compliant transformers cost more than standard efficiency transformers, DOE contributed an additional \$57,000 to GSA's base project funding of \$360,000. The transformers were installed in spring 2001. Prior to this, DOE, in cooperation with the Environmental Protection Agency, studied the load profiles to quantify expected energy and cost savings for a set of the transformers being replaced at the facility.

The study estimated that DOE would save \$10,000 annually in electricity costs if the models installed complied with FEMP's efficiency recommendations instead of standard efficiency levels. For the Germantown facility, GSA and DOE chose Cutler-Hammer's TP-1 models that met FEMP's criteria. Payback for the transformer project was 5.7 years at an electricity cost of \$.062 per kilowatthour. Given that the life of a transformer is roughly 30 to 40 years, the annual savings will offset the higher initial costs of the more efficient transformers.

When transformers are due for replacement, energy-efficient models generally have payback periods well within Federal guidelines. However, when transformers still have a significant amount of useful life, these savings are not usually sufficient to justify early replacement. Nonetheless, with systematic replacement of aging transformers, the Federal government could save approximately 420 gigawatthours in annual energy consumption and \$25 million in annual energy costs. Through its Federal procurement program and its efforts to incorporate energy-efficiency levels into construction guide specifications, FEMP's goal to help save Federal tax dollars and move the Federal government towards greater efficiency can be achieved.

For more information on the DOE Germantown facility project or FEMP's product efficiency recommendations, please contact Alison Thomas of FEMP at 202-586-2099 or alison.thomas@ee.doe.gov.

FEMP Seeks Technical Assistance Projects for FY 2003

In support of the energy efficiency and renewable energy goals set by Executive Order 13123, the Presidential directive on "Energy Conservation at Federal Facilities," and the National Energy Policy, FEMP would like to hear from Federal agencies that require technical assistance in the following areas:

- new construction,
- energy and water efficiency retrofits of existing facilities,
- distributed generation projects including renewable energy on-site generation and combined heat and power systems, and
- operations and maintenance.

Technical assistance includes screening for project opportunities, feasibility studies, procurement specifications (including architect and engineering services), design review, sustainable facility workshops, and performance measurements. The total value for FY 2003 technical assistance is up to \$500,000 to be distributed among selected projects.

The application, technical criteria evaluation, and additional details are available at www.eren.doe.gov/femp/techassist/ta_applications.html. Applications may be submitted online at <http://femp.nrel.gov/tacalls/logon.ta>. The deadline for submitting applications is August 30, 2002. Agencies that participated in the FY 2002 call for projects are encouraged to reapply. Successful and non-successful applicants will be notified by October 31, 2002.

For more information, please contact Shawn Herrera of FEMP at 202-586-1511 or shawn.herrera@ee.doe.gov.

NAVY MEDICAL CENTER USES STRUCTURED ANALYTICAL APPROACH TO RENOVATE CENTRAL ENERGY PLANT

(continued from page 1)

generated from absorption and/or electric chillers. The self-generation decision affects the amount of steam available from the HRSGs. The marginal costs of HRSG and boiler steam are different, causing the marginal cost of operating the absorption chillers to vary. The Medical Center's demand for electricity, steam, and chilled water varies with the season, the day of the week, and the hour of the day. Finally, grid electricity and natural gas prices have been volatile in recent years, especially in California. The equipment sizing and operating decisions for the Navy Medical Center CEP warranted a structured analytical approach.

A spreadsheet model was developed to determine the economically optimal size of new turbine generators and absorption chillers, and the economic operating strategy of the entire CEP. First, the Medical Center's cooling, electric, and steam loads were defined and cost and performance characteristics were then developed for existing and prospective CEP equipment. Alternative electricity and natural gas price scenarios were defined in conjunction with the Navy. Optimal equipment sizing and operating strategies were then determined simultaneously for each of the energy price scenarios.

The optimal gas turbine capacity was found to be the minimum constraint (three units at 1,250 kilowatts each) at the baseline energy price scenario and for other scenarios with a relatively small difference between electricity and natural gas prices (i.e., the "spark spread"). As the spark spread increases, the optimal gas turbine capacity increases above the minimum constraint, but was always less than 2 megawatts per each of three units for the energy price scenarios investigated.

The optimal absorption chiller capacity was also found to be near the minimum constraint (two units at 750 tons each) at the baseline energy price scenario. In contrast to the optimal gas turbine capacity, the optimal absorption chiller capacity was found to correspond more with electricity price than the spark spread. The highest electricity prices investigated pushed the optimal absorption chiller unit size up to about 900 tons. Although higher (grid) electricity prices favor absorption chiller operation, self-generation of electricity keeps electrical centrifugal chillers competitive in these scenarios.

The optimal equipment operating strategy was to run the turbines to the extent possible to meet the Medical Center's and CEP's electrical loads. The absorption chillers should be run preferentially to meet the cooling load, with the electric chillers used when absorption chiller capacity is insufficient or when HRSG steam is insufficient for the absorption chillers to meet the cooling load.

Installation of the new equipment will significantly improve the efficiency of the CEP. Compared to alternatives investigated, implementation of the recommended equipment sizes and operating strategies would save the Navy several million dollars over the life of the equipment. Thanks go to Bill Gage, John Icenhower, Jim Mugg, and John Thomas of the Navy Public Works Center, San Diego, for their help throughout this project.

For more information, please contact Daryl Brown of PNNL or daryl.brown@pnl.gov or Jim Dirks jim.dirks@pnl.gov of PNNL.

FEMP's Industrial Facilities Program: Helping Agencies Achieve EO 13123 Goals for Industrial Facilities

Through its collaboration with DOE's Industrial Technologies Program (ITP), FEMP's Industrial Facilities Program is making ITP's widely-recognized technical expertise available to Federal customers with industrial facilities. FEMP's Industrial Facilities Program can provide Federal agencies with plant-wide or system-targeted assessments, technical training, publications, and software. The Industrial Facilities Program, in tandem with FEMP's alternative financing programs, gives agencies a comprehensive approach for reducing industrial energy use and identifying efficiency opportunities, and helps them meet the goals of Executive Order 13123.

Two of the most popular services the Industrial Facilities Program offers are the plant-wide and system-targeted assessments. Plant-wide assessments are conducted by teams from DOE's Industrial Assessment Centers (IAC). These teams are comprised of highly qualified teams of engineering faculty and students from 26 universities around the country. The IAC teams conduct multi-day plant-wide assessments, then make recommendations to managers to help them identify opportunities to save energy, improve productivity, and reduce waste. System-targeted assessments, conducted by ITP engineering consultants during multi-day site visits, focus on identifying energy savings opportunities in steam, compressed air, motors, and pumping systems.

To be eligible for a plant-wide or system-specific assessment:

- 1.) A facility must be categorized as an industrial space. Executive Order 13123 defines an industrial facility as "any fixed equipment, building, or complex for the production of goods that uses large amounts of capital equipment in connection with, or as part of, any process or system, and within which the majority of energy use is not devoted to the heating, cooling, lighting, ventilation, or to service the hot water energy load requirements of the facility."
- 2.) The facility or targeted system must have a high potential for energy savings, and the agency must provide facility, system, and energy information for screening purposes.
- 3.) Funding mechanisms must be in place for near-term implementation.

In FY 2002, the Industrial Facilities Program conducted several plant-wide and system-targeted assessments across the country:

- **The Denver Mint (Denver, Colorado)** – The Colorado State University IAC team identified \$61,000 in savings with a simple payback of 3.8 years during a plant-wide assessment.
- **Radford Army Ammunition Plant (Radford, Virginia)** – DOE ITP consultants performed targeted compressed air and steam system assessments.
- **Western Currency Facility (Fort Worth, Texas)** – A plant-wide assessment conducted by the Texas A&M University and University of Texas-Arlington IAC team identified more than \$300,000 in annual savings with a simple payback of 2.5 years.
- **NASA Kennedy Space Center (Florida)** – DOE's Oak Ridge National Laboratory team completed an assessment of HVAC operations in industrial areas and identified more than \$160,000 in annual savings with a simple payback of less than 1 year.

FEMP's organization and deployment strategies have enabled the Industrial Facilities Program to move quickly to deliver services to Federal industrial facilities.

For more information about assessments, training, publications, and software that FEMP's Industrial Facilities Program has to offer, please contact Michaela Martin of ORNL at 865-574-8688 or martinma@ornl.gov or Alison Thomas of FEMP at 202-586-2099 or alison.thomas@ee.doe.gov. For general Industrial Facilities Program information, please see www.eren.doe.gov/femp/techassist/industrial_facilities.html.

National Park Service's Assateague Island National Seashore Project a Model of Sustainable Design

On June 7, 2002, a ribbon cutting ceremony was held for Assateague Island National Seashore's sustainable bathhouse project. Located in Toms Cove District, Virginia, the bathhouse project is one of several environmentally sustainable design construction projects currently underway at the National Park Service's Assateague Island National Seashore, which serves 2 million visitors annually. Developing cost-effective, environmentally responsible roadways, parking lots, bathhouses, and visitor facilities on the southern end of the island are important goals of the project.

The cost-effective measures installed on Assateague Island this summer include several innovative elements. Faced with a rapidly moving shoreline and the unsuitability of conventional structures, lightweight cabana structures were developed, which are easy to set-up and dismantle, also allowing easy removal from the beach during pre-storm evacuations.

Photovoltaic (PV) panels were installed in easily-transportable trailers to provide solar-electric powered pumps. The PV systems were chosen, not only because of the fiscal and environmental benefits of renewable energy, but because the systems could be portable. The solar-powered water-pumping trailers acquired through SunWize Technologies feature self-

contained power and controls, which power the permanently installed well pumps as well as the mobile toilet by Romtec, Inc. and cabana lighting systems.

The PV systems also allowed for the removal of unsightly and dangerous overhead power lines which were tenuously strung along a rapidly moving landform. Removing the overhead power lines, in turn, has not only helped to restore a more naturally appearing coastal landscape to this site, but has helped to recreate habitat for the piping plover, a bird which is on the list of Federally-protected threatened and endangered species.

Other features of the Assateague Island bathhouse project include prefabricated vault toilets, equipped with a passive ventilation system, which have been purchased and modified to facilitate rapid removal from the beach. Crushed clamshells, a waste product from the local seafood industries, have also been used to pave the island's roadways.

The Assateague Island project serves as a model of sustainable bathhouse architecture, which other Park Service units may emulate. Mike Hill, Superintendent of Assateague Island National Seashore, said "It's good! It's what we're all about."

In addition to the sustainable bathhouse project, Assateague has partnered with several FEMP programs for multi-year projects. For instance, FEMP's SAVEnergy audits have assisted with prioritizing cost effective measures for energy efficiency upgrades at the Park's Headquarters facility. FEMP's Federal Energy Saver Showcase and Technical Assistance Programs have provided evaluations for renewable energy and energy efficiency measures at two visitor facility rehabilitation projects. The Park Service's collaboration with FEMP is keeping Assateague a greening success story.

For more information, please contact Chris Finlay of the National Park Service at 410-641-1443, ext. 242 or chris_finlay@nps.gov or Sara Farrar-Nagy of NREL at 303-384-7514 or sara_farrar-nagy@nrel.gov.



The Sustainable Bathhouse Project at Assateague Island National Seashore includes lightweight cabanas, passive-vent vault toilets, PV-pumped rinse water, salvaged wood boardwalks, and crushed clamshell paving.

The Driving Force

Assateague is an island on the move. The ocean, shifting sand, and seasonal storms constantly transform the landscape. Natural forces have damaged beach facilities over the years. At Toms Cove, the National Park Service is responding with mobile bathhouse units. Easy to remove and reposition after a storm, each unit includes lightweight changing rooms, passive solar vault toilets, and a solar-powered shower.

Free Fuel

The sun's energy is the power behind the operation of the mobile bathhouse unit.

Driving on Clam Shells

Crushed clam shells, a waste material from the local seafood industry, has replaced asphalt roads. The shells are easier than asphalt to reposition after a storm.

Changing Room

The lightweight changing room, built with stainless steel tubes and wrapped in synthetic canvas, is easy to set up and dismantle.

Moveable Boardwalks

The modular boardwalks are constructed of lumber which was salvaged from the demolition of the old Toms Cove bathhouse. This surface is wheelchair accessible, stable to walk on, yet easy to remove before a storm.

Solar Power

The mobile utility trailer houses all of the equipment required to pump fresh water to the solar shower tower.

Solar Shower Tower

The tower provides a fresh, cold water rinse generated by a solar-electric powered pump in the utility trailer, located nearby. Take a short walk to the trailer and see how the solar water pump works.

Convection Toilet

The toilet's black PVC chimney absorbs solar energy creating a natural convection current—heated, stale air rises out of the chimney; fresh air is then drawn into the wall vent.

Fort Lewis Initiates Comprehensive Energy Plan

As part of the U.S. Army's Forces Command (FORSCOM) Installation Sustainability Program, Fort Lewis, Washington, has begun plans for a long-term "Infrastructure/Energy Initiative." Elements of the infrastructure strategy for Fort Lewis include:

- replacing or modernizing substandard facilities;
- limiting development and preserving environmental, historical, and cultural resources; and
- preserving the unique natural and architectural atmosphere of the installation.

Fort Lewis' energy goals are ambitious, and include sustaining all activities on base using renewable energy sources and generating all electricity on site by 2025. Most construction and energy-related projects on base are focused on military housing. During the next 10 years, Fort Lewis will be constructing new barracks to meet the requirements of two Army brigades. The buildings will be built according to more exacting energy efficiency requirements than previous facilities and will be 25 percent more efficient than existing structures.

In 2003, all new barracks facilities will be constructed to at least a "silver" rating under the U.S. Army Corps of Engineers' Sustainable Project Rating Tool (SPiRiT). The Army's SPiRiT rating system, initiated in June 2001, is an adaption of the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED™) Building Rating System. SPiRiT includes additional rating factors appropriate to military projects and facilities. Projects are rated for sustainability in eight facility categories:

- sustainable sites,
- water efficiency,
- energy and atmosphere,
- materials and resources,
- indoor environmental quality,
- facility delivery process,
- current mission, and
- future missions.

Four SPiRiT levels can be achieved based on the rating points earned:

- Bronze – 25 to 34 points,
- Silver – 35 to 49 points,
- Gold – 50 to 74 points, or
- Platinum – 75 points.

Beginning in 2004, Fort Lewis' new barracks projects will be considered for photovoltaic roofing or solar systems, green roofs, distributed energy systems, and other renewables features. These systems will help new facilities become more self-sustaining.

Fort Lewis plans to formalize their base-wide Installation Sustainability Program including individual action plans, such as the Infrastructure/Energy Initiative, by the end of this year, so that the actual short-term and long-range implementations can begin in 2003 and beyond. These tasks will be accomplished with the help of Advisory and Gateway Community-based groups and task forces, consistent with available resources and Army missions.

Fort Lewis is also committed to educating base personnel about energy and environmental sustainability. The Fort Lewis Public Works web site at www.lewis.army.mil/envcaretakers/ contains energy tips, recycling information, and guidelines for efficient energy and water use. The Fort also provides monthly conservation seminars to educate troop units on conservation techniques.

The primary Fort Lewis maneuver units are the 1st Brigade, 25th Infantry Division, and the 3rd Brigade, 2nd Infantry Division. Fort Lewis is home to more than 25,000 soldiers and family members.

For more information on Fort Lewis' Sustainability Program, please contact Charles Howell of Fort Lewis Army Installation at 253-967-2837 or howellc@lewis.army.mil or Arun Jhaveri of DOE's Seattle Regional Office at 206-553-2152 or arun.jhaveri@ee.doe.gov.

New and Historic Buildings – FEMP Working Group Visit Reveals Common Sustainable Design Features

What are the limitations to incorporating sustainable design in new construction or the renovation of existing buildings, including historical structures? Not many, if you have the imagination, the will to succeed, and a great project team. That's what FEMP's Interagency Sustainability Working Group and FEMP staff learned on a recent site visit to two facilities in Annapolis, Maryland, on August 7, 2002.

Two sustainable design projects in Annapolis illustrate that with creativity and imagination, saving energy and creating a pleasing and productive work environment can go hand-in-hand. The group's first stop was the Philip Merrill Environmental Center, the recently completed headquarters of the Chesapeake Bay Foundation (CBF). The CBF is a 35-year old organization dedicated to environmental advocacy and education and the restoration and protection of the Chesapeake Bay. When the CBF decided to build a new headquarters facility, the organization selected a 31-acre shoreline property on the Chesapeake Bay and established a project team to design and construct an innovative facility. The goal of the project was to incorporate sustainable design features and to improve and protect local water quality and habitat. The facility boasts an array of features including rainwater cisterns, composting toilets, geothermal heat pumps, and a smart parking design of gravel instead of pavement. The center also features natural ventilation, passive solar design, and structural insulated panels. For more information, please see the CBF web site at www.cbf.org.

continued on page 14



The south wall of the Chesapeake Bay Foundation's Philip Merrill Environmental Center faces the Chesapeake Bay and takes advantage of natural light and ventilation.



Natural daylight makes electrical lighting unnecessary during normal activity hours at the U.S. Naval Academy's Mahan Hall.

The Interagency Sustainable Working Group was established in 2001, as an entity of the Interagency Energy Management Task Force. Composed of representatives from 12 Federal agencies interested in pursuing sustainable design and construction, the group's mission is to increase the collaboration and exchange of information among Federal agencies to advance the use of sustainable design/construction in Federal facilities nationwide. Meeting on a bi-monthly basis, participants discuss and share strategies regarding sustainable design and construction issues including: design standards and guidelines, technical assistance and training, cost issues, the growing demand for architectural and engineering technical expertise, and practical application. In addition, the working group is developing a business case for sustainable design and construction in the Federal sector; the group's report is expected to be completed fall 2002.

For more information on FEMP's Interagency Sustainability Working Group, please contact Beverly Dyer of FEMP at beverly.dyer@ee.doe.gov.

Achieve Energy Performance Goals for New Building Design



The EPA ENERGY STAR® *Target Finder* software tool and *New Building Design Guidance* can help improve energy performance in Federal facilities.

Target Finder: An Energy Performance Rating System for New Building Design

Target Finder will provide the annual energy usage for your design based on actual building energy usage in similar buildings (using DOE's Commercial Building Energy Consumption Survey database). By entering basic building information and occupancy data, the tool assigns a score from 1 to 100 and determines the corresponding annual kBtu usage. A score of 90 (and its associated energy usage) will be in the top 10 percent of U.S. building stock. EPA recommends that an aggressive energy target be established early in the design process to provide focus and direction to your energy performance strategies. Commercial new construction can achieve 50 percent energy savings using an integrated design approach and carefully implemented energy

performance strategies. Comparing your estimated energy usage to the target enables you to modify the design to achieve your goals. To use Target Finder go to www.epa.gov/buildings/government, select "Interactive Tools," and then select "Use Target Finder."

New Building Design Guidance: Recommended Actions and Resources

The *New Building Design Guidance* consists of a series of recommended actions at each stage of the design process that focus attention on energy issues and encourage an integrated design approach. A resources section provides a list of applicable web sites containing relevant information for each stage. The guidance does not advocate specific building characteristics or systems and components. Rather, it encourages building owners and designers to consider energy performance in making critical design decisions. For example, pre-design recommendations state that: involving a multi-disciplinary design team,

conducting a charrette (an intensive planning workshop) that includes energy performance objectives, and using Target Finder to determine annual energy use will help you achieve performance goals. To obtain the guidance, go to www.epa.gov/buildings/government select "Resources," and then select "New Building Design Guidance."

Online Workshop: Achieving Energy Performance Goals for New Building Design

ENERGY STAR® offers monthly online presentations on "Achieving Energy Performance Goals for New Building Design." The next session is scheduled for August 28, 2002 at 2:00 p.m. eastern standard time. To register, access www.epa.gov/buildings/government and select "Resources" and click on "Internet Presentations."

For more information on ENERGY STAR®, please see www.energystar.gov or call 1-888-STAR-YES (1-888-782-7937). For additional information, please contact Karen P. Butler of Energy Star® at butler.karen@epa.gov.

NEW AND HISTORIC BUILDINGS – FEMP WORKING GROUP VISIT REVEALS COMMON SUSTAINABLE DESIGN FEATURES

(continued from page 13)

At their next stop, the working group toured the Mahan, Sampson, and Maury Halls on the campus of the U.S. Naval Academy. Built in 1899, this beautiful and historic building complex of classrooms, offices, and passageways was renovated in 2001. The project's design team focused attention on restoring and infusing interior space with natural light from

skylights and interior glass. The renovation project also includes natural ventilation, water conservation devices, building materials composed of recycled content, and recycled furniture. After visiting the building complex, the group was convinced that the historical integrity of any building could not only be preserved but also enhanced through the use of sustainable design principles. To learn more about the project, please see www.usna.edu/PublicWorks/html/acmp.html.

For more information on FEMP's Interagency Sustainability Working Group, please contact Beverly Dyer of FEMP at beverly.dyer@ee.doe.gov.

NEW TECHNOLOGY DEMONSTRATION PROGRAM

Demonstrating New Technologies

This is the fifth in a series of articles from FEMP's New Technology Demonstration Program.

As the end of the fiscal year approaches, we begin the process of planning for next year. As part of that planning process, the New Technology Demonstration Program is interested in partnering with other organizations working toward a common goal.

Every year, Federal agencies (and sites) get involved in new energy-related projects. In many cases, the project may involve installing a new technology or process. For an individual Federal site, the primary goal may be to complete the project, i.e., from design, procurement, installation, commissioning, and to saving energy dollars. If it's a pilot project, it may also include evaluating the technology to determine where else it can be successfully deployed around the site. At a regional or agency level, the focus may also include evaluating the technology to determine where else in the region or agency it should be deployed. We have seen several organizations use demonstrations as a tool to learn more about a new technology. We also recognize that demonstrations are expensive and may require extensive technical expertise. This is where partnerships become valuable.

The New Technology Demonstration Program would like to partner with organizations which are planning demonstrations or pilot projects of new or emerging energy-efficiency, water-conserving, solar, or other renewable-energy technologies during the next fiscal year.

Under the New Technology Demonstration Program, FEMP is not able to provide direct funding assistance to agencies for

the purchase or installation of the new technologies. We are, however, able to provide data acquisition systems, meters, sensors, and other equipment necessary for detailed performance measurement and verification. In addition, we provide the resources and capabilities of the DOE National Laboratories to conduct data evaluation and assessment. With our combined resources, we may be able to collect better, more thorough, information and communicate the results to more Federal agencies so that others may learn from your efforts.

While it is a requirement that the demonstration be at a Federal site, the New Technology Demonstration Program is interested in partnering with other, non-Federal organizations. This invitation to partner for the purpose of demonstrating a new or emerging technology is open to utilities, energy-service companies, trade associations, and others. However, a Federal site must be willing to take the lead in hosting the technology demonstration.

If you are interested in partnering with the FEMP's New Technology Demonstration Program, please contact Ted Collins of FEMP at theodore.collins@ee.doe.gov or Steven Parker of PNNL at steven.parker@pnl.gov.

Coming in the Next Issue

Alternative Financing

Making Your Projects Happen

Including articles on:

- **Cost Elements in Financed Energy Projects;**
- **The Role of Financing in Federal Cooling, Heating, and Power Projects;**
- **FEMP's Partnership with ASHRAE Benefits Federal Efforts to Estimate Operations and Maintenance Savings in Financed Projects;**

... and more!

DOE's Qualified List of Energy Service Companies

The Energy Policy Act of 1992 (EPAct) directed DOE to develop methods and procedures to bring energy savings performance contracts (ESPCs) into the mainstream of Federal procurement. An ESPC regulation detailing the methods and procedures was published in Title 10 Code of Federal Regulations, Part 436. The regulation established methods and procedures for competitive contractor selection and states that DOE shall maintain a list of qualified energy service companies (ESCOs) who may compete for advertised Federal ESPC solicitations. The DOE Super ESPC regional and technology-specific contract competitions, as well as the DOD indefinite-delivery, indefinite-quantity (IDIQ) blanket contract competitions, requires competitors to be included on DOE's qualified list to be eligible for consideration for a contract award. As all other Federal agencies are bound by the regulation, any Federal agency competitions for ESPC work, whether solicited for award of long-term IDIQ contracts or for site-specific ESPC work, must also require that potential offerors establish themselves on this list. Inclusion on the qualified list only provides contractors with eligibility to compete for Federal agency ESPC opportunities and does not guarantee the award of Federal contracts.

ESCOs must undergo an application process to be considered for DOE's qualified list. FEMP facilitates and provides all administrative assistance for the process of evaluating the skills

and experience of the ESCOs. All first-time applicants must submit a statement of qualifications and two client questionnaires with original signatures from project clients.

A Qualification Review Board (QRB), comprising of representatives of the Federal Interagency Energy Management Task Force and the Department of Energy, evaluates all applications. Only those companies which the QRB accepts as meeting the defined criteria are placed on DOE's qualified list.

Federal agencies may accept unsolicited ESPC proposals but only from firms on the qualified list. When an agency wishes to consider an unsolicited proposal, it must acknowledge receipt of the proposal in the Commerce Business Daily (CBD) and invite other firms on the qualified list to submit competing proposals.

To remain on the qualified list, ESCOs must annually resubmit updated statements of qualification or certify that information previously furnished has not changed. FEMP initiates this update each year with an announcement in the CBD and by sending applications to firms already on the qualified list.

The qualified list is available at www.eren.doe.gov/femp/financing/espc/esco.html.

continued on next page

What Is an ESCO?

An ESCO, or energy service company, is a business that develops, installs, and finances projects designed to improve energy efficiency and reduce operations and maintenance costs for its customers' facilities. ESCOs generally act as project developers for a wide range of tasks and assume the technical and performance risk associated with the project. What sets ESCOs apart from other firms that offer energy efficiency improvements is the concept of performance-based contracting. When an ESCO undertakes a project, the company's compensation is directly linked to the amount of energy that is actually saved.

The comprehensive energy efficiency retrofits inherent in ESCO projects typically require a large initial capital investment and may offer a relatively long payback period. The customer's debt payments are tied to the energy savings offered under the project so that the customer pays for the capital improvement with the money that comes out of the difference between pre-installation and post-installation energy use and other related costs.

Note: This definition is based on "What is an ESCO," by NAESCO (National Association of Energy Service Companies), used by permission.

DOE'S QUALIFIED LIST OF ENERGY SERVICE COMPANIES*(continued from previous page)***DOE's Qualification Review Board - ESCO Evaluation Criteria**

Through an energy savings performance contract (ESPC), an energy service company (ESCO) arranges financing to develop and install energy and water conservation and renewable energy projects. As part of the project, the ESCO conducts a comprehensive energy audit and identifies improvements that will save energy and reduce utility bills at the facility.

The ESCO guarantees that energy improvements will result in a specified level of annual cost savings to the Federal customer, and that these savings will be sufficient to pay the ESCO for its work over the term of the contract. Agencies use a portion of guaranteed energy cost savings to pay for building improvements over the life of the contract. After the contract ends, all additional cost savings accrue to the agency. Contract terms can be up to 25 years, depending on the scope of the project.

Federal agencies are required to announce ESPC solicitations in the Commerce Business Daily (CBD). The CBD announcements provide contact information and instructions for obtaining solicitations. Any firm may request an ESPC solicitation and respond with a proposal, but must become qualified before contract award. The period of eligibility of the firm's qualification runs from February 1 through January 31 of a given year.

The Qualification Review Board selects firms for inclusion on DOE's qualified list of ESCOs based on the following criteria:

- 1) The firm has provided ESPC services or services that saved energy or reduced utility costs for not less than two clients, and the firm possesses the appropriate project experience to successfully implement the technologies that it proposes to provide.
- 2) Previous project clients provide ratings of "fair" or better.
- 3) The firm or any principal of the firm has neither been insolvent nor declared bankruptcy within the last 5 years.
- 4) The firm or any principal of the firm has not been debarred from working with the Federal government.
- 5) There is no adverse information which warrants the conclusion that the firm is not qualified to perform energy savings performance contracting.

For more information about DOE's Super ESPC program and how to apply for the DOE's qualified list of ESCOs, please see www.eren.doe.gov/femp/financing/espc/esco.html or contact Tatiana Strajnic at 202-586-9230 or tatiana.strajnic@ee.doe.gov.

Your Alternative Financing Questions Answered**Who determines the cost baseline, the agency or the ESCO?**

Baseline costs are established as part of the measurement and verification (M&V) methodology that is agreed upon by the contractor (energy service company - ESCO) and the customer (agency) and is documented in the delivery order. For more information, please see FEMP's *Practical Guide to Savings and Payments in Super ESPC Delivery Orders* at www.eren.doe.gov/femp/financing/espc/practical_guide.html.

How much detail should be included in an initial project proposal and what happens if the agency does not accept the initial proposal?

The initial proposal is intended to give the agency enough information to make a confident decision on whether or not to proceed with the project. It is not expected to reflect a complete understanding of the agency and site-specific requirements, and is intended to be completed at a modest cost to the ESCO. The initial proposal must comply with the indefinite-delivery, indefinite-quantity contract requirements and include a narrative summary of the proposed project, descriptions of the energy conservation measures, estimates of proposed energy and cost savings, an overview of M&V methods, a responsibility matrix, and estimated price. Financial schedules are also required components of the initial proposal.

If the agency determines that the initial proposal does not meet its needs, it can issue a letter rejecting the ESCO's proposal. The agency can still accept proposals from other ESCOs as long as it does not disclose the original ESCO's proprietary information. If the agency decides to work with the ESCO to improve the initial proposal, it can provide feedback to the ESCO on deficiencies or desired changes in the initial proposal and allow for a revision to be submitted in the final proposal.

What questions do you need answered? FEMP wants to provide the most useful information possible, but we need your help to achieve this! Please submit your questions via e-mail to Tatiana Strajnic of FEMP at tatiana.strajnic@ee.doe.gov.

Labs21 Develops Laboratory Environmental Performance Criteria

Laboratory facilities present a unique challenge for energy efficient and sustainable design, with their inherent complexity of systems, health and safety requirements, long-term flexibility and adaptability needs, energy use intensity, and environmental impacts. The typical laboratory is about five times as energy intensive as a typical office building and costs about three times as much per unit area. In recognition of the importance of laboratory energy and environmental impacts, EPA and DOE sponsor the Laboratories for the 21st Century (Labs21) program, which is dedicated to the pursuit of sustainable, high performance, and low-energy laboratories.

In order to help laboratory stakeholders assess the environmental performance of their laboratories, Labs21 is developing the Environmental Performance Criteria (EPC), a point-based rating system specifically designed for laboratories. Currently, the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED™) rating system is the primary tool used to rate the sustainability of commercial buildings. However, LEED™ was not designed for laboratories and lacks attributes essential to the sustainable design of this unique building type.

The Labs21 EPC effort builds upon the successful LEED™ rating system. In addition to the existing credits in LEED™ 2.0, the Labs21 EPC has prerequisites and credits for "green" laboratory features in the following areas:

- Sustainable sites—reducing impact of air and water effluents;
- Water efficiency—documenting and reducing process water use;
- Energy and atmosphere—improving energy efficiency of laboratory systems and equipment;
- Materials and resources—hazardous material handling and chemical resource management; and
- Indoor environmental quality—laboratory ventilation, fumehood safety modeling, and commissioning.

Labs21 EPC Version 1.1 was released in December 2001. Version 1.1 was a draft proposal intended to be used for broader discussion with industry. The draft guidelines served as a starting point for the development of Version 2.0. Eight working groups have been established to develop Version 2.0, primarily through a series of conference calls, using Version 1.1 as a starting point. Participation is open to all interested

stakeholders. About 40 participants (architects, engineers, consulting experts, health and safety personnel, and facilities personnel) have come together thus far in working group conference calls, contributing more than 150 hours to the effort. Many of the participants have also developed draft revisions for the credits in each working group.

A draft proposal been completed and is available for comment. Based on the feedback received, a second series of conference calls will be held, if needed, for each working group. Version 2.0 is expected to be released in October 2002.

For a copy of the draft EPC Version 2.0 and the response form to participate in the evaluation of the EPC rating system, please see <http://issfps.lbl.gov/Labs21/epc.html>. For more information on the Labs21 program, please see www.epa.gov/labs21century. If you are interested in participating in the development of the EPC or in pilot testing it in your laboratory facility, please contact Paul Mathew of LBNL at 202-646-7952 or pamathew@lbl.gov.



New Guidebook for Lighting Retrofits at National Park Service Visitor Centers

The *Lighting Retrofit Workbook* is a practical “how to” guide for retrofitting the lighting at National Park Service (NPS) Visitor Centers. The guide, a product of the Green Energy Parks partnership through FEMP’s Design Assistance Program, was developed by DOE’s Lawrence Berkeley National Laboratory (LBNL), in close partnership with Steve Butterworth, Regional Energy Coordinator for the NPS, the maintenance staff at Point Reyes National Seashore, and support staff from the Oakland, California, NPS office. Designed as a simple, straightforward handbook for implementing lighting retrofits, the heavily illustrated guide is targeted at park facilities staff and uses NPS retrofits as examples. Butterworth noted that the NPS is already distributing the guide to their architecture and engineering firms for use in new facility construction. He said that people have found it “easy-to-use and attractive.”

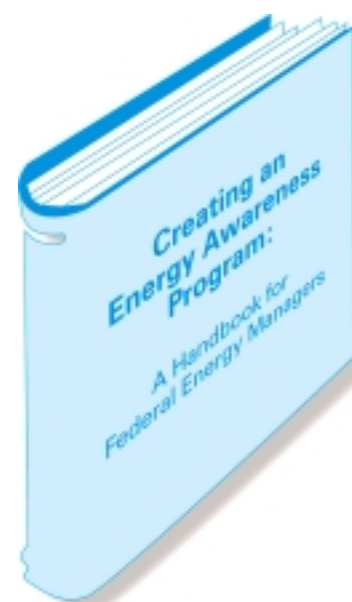
The step-by-step process outlined in the guide to provides NPS staff with simple questions and forms, without a lot of calculations or complexity. The resources and examples used in the guide provide information and guidance to produce significant energy savings. Michael Siminovitch, lead author for the LBNL team adds, “These are basic measures that can be done at any visitor center and will result in better lighting quality and lower energy use. We started looking at individual visitor centers, and soon discovered that while there are regional differences, a lot of the basic office, lobby, hallways, and work areas could benefit from general lighting upgrades. “Of course we would like to go back and do more extensive site visits—particularly in Hawaii,” he said with a chuckle, “but we hope that NPS staff can use these guidelines across the country.”

To download the “Lighting Retrofit Workbook,” please go to http://ateam.lbl.gov/PUBS/doc/NPS_guidebook.pdf. Periodic updates of the guide are planned, so comments are encouraged and can be forwarded to Steve Butterworth of the National Park Service at Steve_Butterworth@nps.gov.

FEMP’s Energy Awareness Handbook: Your Guide to Outreach Programs

Whether you are looking to launch an energy awareness program or reenergize an existing program, FEMP has a new guidebook to assist you in your efforts. *Creating an Energy Awareness Program: A Handbook for Federal Energy Managers* was developed to help Federal energy managers design and implement programs aimed at increasing energy-efficient behavior of employees at Federal facilities. You can read from the beginning for a comprehensive approach, or flip to the sections you are interested in for greater detail. With detailed appendices on everything from sponsoring special energy awareness events to developing and conducting surveys on program design, a wealth of information has been assembled for your use. Even if you have an outreach program in place, this guidebook contains valuable ideas and approaches that you may not have tried before.

FEMP’s “Creating An Energy Awareness Program” guidebook can be ordered through DOE’s Energy Efficiency and Renewable Energy Clearinghouse at 800-363-3732 or to order online visit www.eren.doe.gov/femp/ordermaterials.html. For more information, please contact Annie Haskins of FEMP at 202-586-4536 or annie.haskins@ee.doe.gov.



Update on Facility Energy Usage Tracking and Accounting Software

Computer software that monitors facility energy usage and identifies usage patterns, anomalies, and demand reduction opportunities is aiding in the effort to reduce energy consumption and boost savings. These software programs commonly referred to as energy usage tracking and accounting software, also known as energy information systems (EIS), are playing an increasingly important role for Federal agencies. A survey recently conducted by DOE's Pacific Northwest National Laboratory (PNNL) reveals valuable insights for Federal energy managers who are considering whether to add energy information technology to their utility management program.

In 1998, DOE's Seattle Regional Office supported several Federal agencies with the purchase and installation of energy usage tracking software. In fall 2001, PNNL contacted these agencies and several others using newer generations of accounting software, to discuss their experiences. Ten Federal agencies or sites were surveyed including the five that received support from DOE's Seattle Regional Office. They included the Army, Navy, and Marine Corps, as well as the National Park Service and Federal Aviation Administration.

Each site was asked to respond to a series of questions regarding the software tool selected, installation of the software, training or resources provided, the type of data tracked, pathways for data entering the system, reports generated, usefulness of the tool, and issues or complaints. The focus of the survey was on the experience and opinions of the actual users and did not include a technical review of the software system. While each facility has unique needs and experiences differed, several common issues were identified from the agency contacts. The following is a summary of the key findings.

- Sites with **motivated staff** are effectively using the software to save energy and are having an impact on their facility's energy consumption. Others are using a fraction of their tool's capabilities, focusing mainly on "getting the bills out," and are satisfied doing so. Sites that are successful in managing their utilities generally have a

"champion" who makes it his or her personal mission. Attrition and turnover can be a challenge in maintaining a successful program.

- Most sites indicated some **training** was available when the tool was installed. A bigger concern, however, is on-going training because, as staff members change, much of the initial knowledge can be lost. Choosing a software vendor that has a history of quality, on-going support is important. In one instance, a motivated Federal energy staff person taught herself how to use the software tool, requesting assistance from the software vendor on an as-needed basis. Beyond a tool's basic functions, users also identified general training on how to better manage utilities as equally important.
- **Change** represents the biggest risk to an energy usage data system. Software companies can be sold or go out of business, leading to no technical support and, in a worst-case scenario, software that will no longer be supported for new computer operating systems. Selecting a vendor who will be in business for some time is very important. At the local level, processes that are put in place to automatically collect data can disappear when external organizations (e.g., utilities) change their systems. It is helpful for Federal sites to develop a good relationship with serving utilities, understand what the "critical" data paths are, and be prepared to quickly adjust when things change. Expect your accounting system to evolve and need upgrading over time.
- Every tool should be **customizable** by the site. Flexibility is important, especially for sites where needs are constantly changing. At a minimum, the site should be able to customize reports and other outputs so they do not have to run to the software vendor when needs change. Sometimes the systems or data requirements change so frequently or are so complex that a custom-developed system is a good choice for a facility. There are advantages

continued on next page

UPDATE ON FACILITY ENERGY USAGE TRACKING AND ACCOUNTING SOFTWARE

(continued from previous page)

to building a custom energy usage tracking system, but it also comes with a high cost and a commitment to maintain the system. Some facilities rely on de facto spreadsheets or tools because they have not looked at anything else and probably would be better served by a different tool.

- **System cost**, features, and agency needs are a determining factor in choosing a tool, and if fully used to manage and improve facilities, the cost should be easy to justify. Many facilities look for assistance purchasing, installing, and learning their system from their DOE Regional Office, FEMP's Technical Assistance program, their State energy office, their local utility, and with purchased training from software vendors. Other systems were purchased (or developed) along with an energy savings performance contract as part of the measurement and verification process.

For Diane Mansker, an energy engineer technician with Yosemite National Park and one of the PNNL survey respondents, energy usage software tools have made a difference. "With an electrical meter you can't tell much about your systems, it is like having a snapshot of your electrical usage that is only read once a month," said Mansker. "With an energy tracking system I can monitor energy usage 24 hours a day and have that information to change operating processes and manage the buildings' demand side usage. This saves energy, time of use charges, and most importantly the bottom line."

Although many of the initial users of accounting software started with PC-based products, the field has rapidly moved to web-based software systems with many more capabilities than the earlier software. DOE's Lawrence Berkeley National Lab (LBNL) recently analyzed over a dozen systems and has compiled a report entitled "Web-Based Energy Information Systems for Large Commercial Buildings" regarding the types of systems and features available. The report is available from LBNL's web site at <http://buildings.lbl.gov/hpcbs> or contact Mary Ann Piette at MAPiette@lbl.gov or 510-486-6286. (Also, see "Utility Accounting Software Helps California National Guard Save Money," *FEMP Focus*, May/June 1999. This article provides information on the key points to consider when investigating accounting software.)

Dedicated staff can be one of the most important keys to successfully using software tools to manage energy use.

Training in the use of the software selected and interpreting site data to identify savings opportunities are critical to maximizing the use of tracking software. Finally, although some software tools clearly have more features than others, each site should identify its needs and select an appropriate tool because there is no "one size fits all."

The EIS field is still evolving rapidly and the tools available are varied and ever expanding. With the advances in metering, control, and monitoring through energy management systems, a wide variety of approaches are possible. The software and tools available today can be very valuable for Federal agencies in managing energy costs and identifying opportunities for savings.

For more information or support, please contact Cheri Sayer of DOE's Seattle Regional Office at 206-553-7838 or cheri.sayer@ee.doe.gov, Bill Chvala of PNNL at 509-372-4558 at william.chvala@pnl.gov, or Norman Bourassa of LBNL at 510-486-6724 or njbourassa@lbl.gov.



FEDS 5.0 is Now Available!

The Facility Energy Decision System, or FEDS, is a software tool that quickly and objectively identifies energy improvements that maximize savings. With limited user input, this program can:

- develop a building prototype and engineering parameters,
- calculate electrical demand and energy consumption,
- determine potential retrofits and their cost effectiveness using Federal life-cycle cost analyses as required in 10 CFR 436A and OMB Circular A-94 or assuming energy savings performance contract funding,
- provide detailed analysis of single buildings or large installations with many buildings, and
- meet Executive Order 13123 requirements.

FEDS determines the optimum set of cost-effective retrofits from a database of hundreds of proven technologies. These include retrofits for heating, cooling, lighting, motors, building envelope, and water heating. Replacement or modification considerations vary from complete replacement to functional enhancements to fuel switching. Optimization can be targeted to a single end-use, building, or entire installation, and retrofit cost data can be modified to better represent costs at your site.

As with previous versions, FEDS 5.0 has been developed by DOE's Pacific Northwest National Laboratory with the

support of FEMP and other Federal agencies. FEDS 5.0 marks a substantial step forward in the continued evolution of the FEDS software. Moving the code to a full 32-bit platform has enabled the software to provide a more complete and intuitive Windows®-based interface with a menu bar and icon-driven command toolbar and a new integrated user's guide and help system. The 32-bit environment has increased execution speed up to ten-fold or more. FEDS 5.0 contains fully updated cost and performance data, new baseline and retrofit technologies, and many functionality enhancements aimed at making FEDS easier to use.

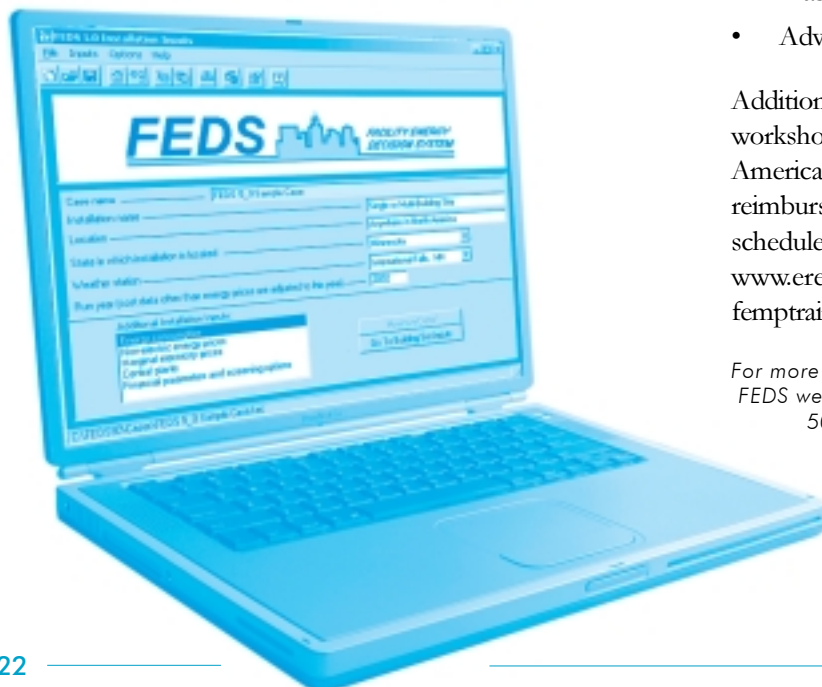
FEDS software is available free of charge to Federal agencies and contractors working for Federal agencies and projects funded and directly performed by an agency of a State government. Copies of the software can also be purchased for other use. To obtain copies of the software visit FEMP's web site at www.eren.doe.gov/femp/techassist/softwaretools/softwaretools.html#feds.

FEMP conducts FEDS training workshops, distributes the FEDS software, and provides technical assistance. Workshops provide hands-on experience and in-depth information on using the software to best meet your needs. Dates and the location of FY 2003 FEDS training workshops are:

- Introduction to FEDS – May 21, 2003 in Anchorage, Alaska.
- Advanced FEDS – May 22-23, 2003 in Anchorage, Alaska.

Additional dates will be announced including a three-day workshop to be co-sponsored by FEMP and DOE's Rebuild America Program. Specialized on-site training on a cost reimbursable basis is also available to Federal agencies. The full schedule of FEMP's training courses is available at www.eren.doe.gov/femp/resources/training/femptraining.html.

For more information on FEDS software or workshops, please see the FEDS web site at www.pnl.gov/FEDS or contact Rosemarie Bartlett at 509-375-6606 or FEDS.Support@pnl.gov. To register for FEDS workshops, please go to www.pnl.gov/femp/ or call 509-372-4368.



Rooftop Air Conditioner Update: Technology Procurement Winners Available for Purchase

A year ago, the *FEMP Focus* featured an article on improving the energy efficiency of packaged rooftop systems. (See “Improving Energy Efficiency in Packaged Rooftop Systems,” *FEMP Focus*, July 2001.) The article described the needs and opportunities for higher efficiency and progress along several fronts, including mandatory minimum standards, the Consortium for Energy Efficiency’s (CEE’s) High Efficiency Commercial Air Conditioning initiative, and new ENERGY STAR® ratings for these products. The article also reported on a plan by the Defense Logistics Agency (DLA) and DOE’s Pacific Northwest National Laboratory (PNNL) to issue a coordinated innovative procurement for a “new generation” of packaged rooftop systems in small commercial sizes (between 65,000 and 135,000 Btu per hour). Some of the winning units are now available for purchase by Federal government and private entities.

The procurement, supported by both FEMP and DOE’s Office of Building Research and Standards, in addition to the Department of Defense, seeks to promote the manufacture of equipment that improves both performance and cost-effectiveness compared to models now on the market. PNNL provided the technical and market research to initiate the procurement, and also recruited several large prospective buyers, both within and outside the Federal government.

The solicitation, issued in early January 2002, required that equipment meet at least the CEE Tier II / ENERGY STAR® / FEMP efficiency levels, at a minimum, and prescribed a cost-effectiveness rating formula that balanced the initial price of the equipment against expected energy costs, taking into account average weather conditions and both full- and part-load efficiencies. Winning models with the lowest total life-cycle cost have been selected, and PNNL has negotiated basic ordering agreements reflecting the offered prices and terms with two manufacturers for the following products:

Lennox Industries, Inc.

Model	Btu/Hour	Energy Efficiency Ratio	Integrated Part-Load Value	Price
LCA090H	90,000	11.3	12.0	\$2,990
LCA102H	101,000	11.0	12.0	\$3,390
LCA120H	120,000	11.0	11.8	\$3,990

Global Energy Group (Available this Fall)

Model	Btu/hour	Energy Efficiency Ratio	Integrated Part-Load Value	Price
PH007C	88,000	13.5	13.9	\$4,325
PH010C	115,000	13.4	14.0	\$5,525

Federal buyers will soon be able to purchase these products through DLA’s catalogs or by visiting the Unitary Air Conditioner Technology Procurement web site at www.pnl.gov/uac/. In the meantime, purchasers can contact Brad Hollomon of PNNL at 202-646-5043 or hollomon@pnl.gov. The program’s web site also contains useful advice on typical air conditioner design features, as well as a life-cycle cost comparison tool that grew out of the selection criteria for the procurement. It is designed to help users select optimal equipment by comparing different models’ life-cycle cost at their respective efficiency levels. Among the screening tool’s key features, the menu-driven software:

- quickly estimates life-cycle cost, simple payback, rate of return, and savings-to-investment ratio;
- accommodates equipment with one or two compressor stages;
- accounts for part-load, as well as full-load efficiencies;
- simulates operation under specific climate conditions at any of 237 U.S. locations;
- reflects user-specified air conditioning requirements and building use patterns;

continued on page 24

FEMP's DER Guide Now Available

Determining whether a distributed energy resource project will make sense for your Federal facility is now a little easier with FEMP's practical, step-by-step guide, *Using Distributed Energy Resources: A How-To Guide for Federal Facility Managers*. FEMP's DER guide describes:

- DER applications, and the potential benefits of using DER in Federal facilities;
- DER technologies, and how to match them to applications;
- a step-by-step approach to implementing projects;
- barriers that may be encountered, and how to overcome them; and
- resources that can assist you in implementing new DER projects.

Economic and environmental factors make it worthwhile to consider DER. If you are seeking to reduce high energy costs, increase electric power reliability, lower emissions, and/or improve fuel utilization at your facility, DER systems could be the solution you are looking for.

FEMP's DER guide outlines seven easy-to-follow steps that will help you to obtain a DER system that's right for your site. The guide is now available in PDF format on FEMP's web site at www.nrel.gov/docs/fy02osti/31570.pdf.

FEMP's "Using Distributed Energy Resources" guide can also be ordered through DOE's Energy Efficiency and Renewable Energy Clearinghouse at 800-363-3732 or at www.eren.doe.gov/femp/ordermaterials.html (click on "Technology Fact Sheets/Guidelines"). For additional information, please contact Shawn Herrera of FEMP at 202-586-1511 or shawn.herrera@ee.doe.gov.

Plan for Upcoming DER at Federal Facilities Workshops

FEMP is sponsoring several regional workshops for Federal energy managers interested in applying distributed energy resources (DER) at their facilities. The workshops are co-sponsored by DOE's regional offices as well as businesses that support DER throughout the country. The primary focus of this workshop series is to link up Federal facility managers interested in DER projects with project developers, equipment manufacturers, and system designers.

Federal energy managers will be joined at the workshops by manufacturers and distributors of DER equipment and systems, as well as by energy service companies, utility companies, energy laboratories, research organizations, financing organizations, and others interested in developing and implementing DER projects.

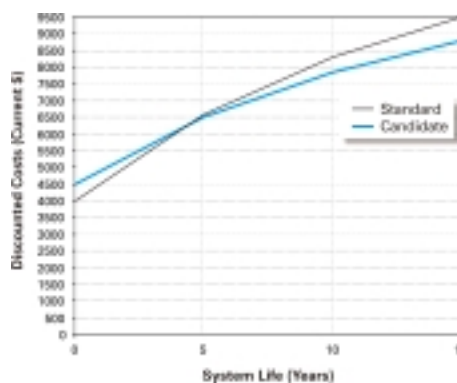
Mark your calendar for upcoming DER workshops:

- **Albuquerque Hands-On Training** – September 4-5, 2002 in Albuquerque, New Mexico.
- **Boston Region Workshop** – October 23-25, 2002 in Boston, Massachusetts.
- **Western Region Workshop** – Spring 2003 in Los Angeles, California.

Details on the workshops are available at www.eren.doe.gov/femp/techassist/der_resources.html. For additional information, please contact Shawn Herrera of FEMP at 202-586-1511 or shawn.herrera@ee.doe.gov.

ROOFTOP AIR CONDITIONER UPDATE: TECHNOLOGY PROCUREMENT WINNERS AVAILABLE FOR PURCHASE (continued from page 23)

- allows a comparison of alternative equipment choices with user-specified electric rate and financial assumptions; and
- provides results as downloadable graphic files for further analysis and presentation.



This sample output graph indicates cumulative costs of acquiring and operating two hypothetical air conditioners, one with a higher price and efficiency than the other.

As electricity rates soar around the country, air conditioning is taking a bigger bite out of everyone's utility budgets. New high-efficiency air conditioners may make sense for your Federal facility.

For more information, please contact Alison Thomas of FEMP at 202-586-2099 or alison.thomas@ee.doe.gov.

Attention Sponsors of Energy and Water Management Training Courses:

FEMP Seeks Training Course Submissions for Event LOCATOR System

FEMP will include your training courses in FEMP's online Training Event Locator System—LOCATOR, at no charge. The LOCATOR database helps the energy and water conservation community obtain information about training courses and conferences offered by FEMP and many other public and private organizations. These organizations include Federal, State, and local government departments and agencies, colleges and universities, professional associations, industry groups, and private-sector organizations. LOCATOR provides training course information including:

- Course Category and Course Sub-Categories,
- Course Title,
- Event Dates and Location,
- Organization Contact Information,
- Course Cost,
- Target Audience Information,
- Continuing Education Units (CEUs), and,
- Other information as appropriate.

LOCATOR is being updated to a more user-friendly format with a redesigned site layout and graphics, and improved search features. The site's increased search capabilities include revised subject categories, i.e., key word searching (see accompanying box), and a useful index of course sponsor web sites.

After users have identified pertinent courses of interest, they are responsible for contacting the course sponsors directly to obtain detailed course descriptions, register for a specific course, or obtain any additional information which may be required. LOCATOR provides active links to course sponsors' e-mail and web site addresses, where applicable. LOCATOR is available on FEMP's web site at www.eren.doe.gov/femp/resources/training/locator.html.

Organizations that offer training courses designed to improve the energy-saving capabilities of operations staff, designers, managers, planners, and acquisition personnel at Federal facilities may submit information for inclusion in LOCATOR. The "Add Course" link on the navigation bar provides a convenient screen for directly entering course information. FEMP retains the right to accept or decline all course submissions, and to edit the record in the LOCATOR database.

If you would like to include your training course information in LOCATOR, you may submit your course information by going to www.eren.doe.gov/femp/resources/training/locator.html, or you may forward your information to Douglas Eisemann at:

Douglas Eisemann
McNeil Technologies, Inc.
6564 Loisdale Court, Suite 800
Springfield, VA 22150
deisemann@mcneiltech.com
703-921-1633
703-921-1610 (fax)

For more information about LOCATOR, please contact Ted Collins of FEMP at 202-586-8017 or theodore.collins@ee.doe.gov.

continued on page 26

FEMP SEEKS TRAINING COURSE SUBMISSIONS FOR EVENT LOCATOR SYSTEM*(continued from page 25)*

Training Event LOCATOR System

Course Categories

The Course Categories are subject-specific key words that are the primary means for searching and retrieving training course information from the database. Course Categories and Sub-Categories are based on the training areas required for “Trained Energy Managers” by the Energy Policy Act of 1992 and the training goals of Executive Order 13123 and more recent Executive Branch directives. The Course Categories and Sub-Categories were updated this year to reflect current issues of significance to the Federal energy management community:

- | | |
|--|--|
| 1.) Alternative Financing for Energy Projects | 6.) Building Energy Systems |
| 1.1 Energy Savings Performance Contracting | 6.1 Building Envelope |
| 1.2 Utility Energy Service Contracting | 6.2 Lighting |
| | 6.3 HVAC/Boilers/Chillers |
| | 6.4 Electrical Systems/Transformers |
| 2.) Utility Purchasing and Pricing | 7.) Energy Efficient Equipment Procurement |
| 2.1 Peak Load Management | |
| 2.2 Utility Deregulation | 8.) Building Design and Construction |
| 2.3 Green Power and Renewable Energy Purchasing | 8.1 Sustainable Design and Construction |
| | 8.2 Energy Codes and Standards |
| 3.) Operations and Maintenance | 8.3 Design Criteria |
| 3.1 Energy Auditing | |
| 3.2 Building Commissioning | 9.) Energy Accounting and Analysis |
| | 9.1 Energy Metering |
| 4.) Renewables/Distributed Energy Resources (On-Site Generation) | 9.2 Energy Audits |
| 4.1 Solar | |
| 4.2 Wind | 10.) Life-Cycle Cost Methodology |
| 4.3 Geothermal | |
| 4.4 Biomass | 11.) Energy Intensive Facilities and Processes |
| 4.5 Combined Heat and Power | 11.1 Industrial |
| 4.6 Fuel Cells | 11.2 Laboratories |
| 5.) Water Conservation | 12.) General Energy Management Topics/Other |

The Course Categories, which encompass applicable Sub-Categories, may be searched including all the Sub-Categories (the default option), or specific Sub-Categories may be searched individually. When multiple Course Categories are combined into a single search, all applicable Sub-Categories are included. Most other fields of LOCATOR course records are searchable, including the Course Title (text words), Organization Name (drop down list), Event State (drop down list), and Event Date (specified range). All these data elements may be combined to provide search results tailored to the specific requirements of each user. A list of summary search results are displayed and each entry in the list may be selected to display detailed course information.

Energy 2002: A Hot Success!

By all accounts Energy 2002, the Fifth Annual Workshop and Exposition sponsored by DOE's Federal Energy Management Program, was a resounding success. More than 1,000 participants registered for the event, held June 2-5, 2002, in Palm Springs, California. Co-sponsored by the U.S. Department of Defense and the U.S. General Services Administration, Energy 2002: "Hot Challenges, Cool Solutions," was the highlight of the year for many energy management professionals.

Feedback from attendees at this year's event was outstanding. Eighty percent of participants rated the workshop "excellent," with the remaining 20 percent rating it "satisfactory." Eighty-seven percent of attendees said they would recommend the program to their colleagues. The vast majority of attendees are facility energy managers involved

with energy efficiency, water conservation, and renewable energy. However, each year sees an increase in other occupations, such as procurement officials, policy analysts and managers, and architects. Similarly, most participants categorize themselves as either "Federal civilian," or "Federal military." In recent years, there has been a strong effort to reach out to the private sector, utilities, State and local governments, and non-profit organizations. This is due in large part to suggestions made by previous attendees to include these sectors in the program.

Energy 2002 offered the following workshop tracks, with up to eight sessions in each:

- Energy 101;
- Distributed Energy;
- Facilities;
- Policies, Programs, and Partnerships;
- Project Financing;
- Renewables: The Green Scene;
- Sustainable Building Design;
- Technology;
- Transportation;
- Utilities, and
- Water Resource Management.

While all segments of the workshop were well attended, the most popular track at Energy 2002 was undoubtedly Sustainable Design. More than 1,000 people attended the eight sessions in this track, which included "Best Practices in Building Commissioning," "Workplace Standards - Air Quality/Ergonomics," and "Pentagon Renovation Program." Other popular sessions throughout the event were "Rules of Thumb," "Measurement and Verification," and "New and Emerging Technologies."

Plans already are underway for Energy 2003, which will be held August 17-20 in Orlando, Florida, at the Wyndham Palace Resort and Spa.

For program and registration information on Energy 2003, please see www.energy2003.ee.doe.gov/. For additional information on Energy 2002 including, speaker presentations and a list of attendees, please see www.energy2002.ee.doe.gov.



FEMP Exhibit Staff (left to right): Nellie Tibbs-Greer, Jennifer Landsman-Ayers, Bill Martin, and Jane Vander Linden.



Energy Awareness Month Marks Return of Annual Awards Programs

October 2002—Energy Awareness Month—marks the return of three DOE-sponsored awards programs that recognize Federal employees for their efforts on behalf of energy and water conservation at their facilities. These programs recognize outstanding contributions in the areas of energy efficiency, renewable energy, water conservation, and cost-beneficial landscaping. Awards are given to individuals, small groups, and entire agencies.

This year, DOE celebrates 23 years of energy efficiency recognition through its annual Departmental Energy Management Awards Ceremony. The awards ceremony was established in 1979 by the In-House Energy Management Program, which is now part of FEMP under the Assistant Secretary for Energy Efficiency and Renewable Energy. Each year, these awards are presented to DOE personnel in recognition of their outstanding contributions toward energy and dollar savings at DOE facilities and field organizations. The Departmental Awards will be held on October 22, 2002 in the DOE Headquarters Forrestal Auditorium. DOE personnel are encouraged to attend and honor their colleagues.

For more information regarding the Departmental Awards, please contact Danette Delmastro of FEMP at 202-586-7632 or danette.delmastro@ee.doe.gov.

The Federal Energy and Water Management Awards also will be held in October. Nominations for Federal Awards were received by FEMP in May 2002, and evaluations took place in June. The awards will be presented at a formal ceremony to honor 53 individuals, small groups, and organizations from the 14 agencies who won awards. The ceremony and celebratory luncheon will be held on October 23, 2002, in Washington, D.C. A reception to honor award winners will be held on the evening of Tuesday, October 22. Both events are by invitation only.

For more information regarding the Federal Energy and Water Management Awards, please contact Nellie Tibbs-Greer of FEMP at 202-586-7875 or nellie.tibbs-greer@ee.doe.gov.

The Presidential Awards for Leadership in Federal Energy Management honor employees from multiple Federal agencies for their support, leadership, and efforts in promoting and improving Federal energy management. This awards program is in its third year and is required by Executive Order 13123.

The Presidential Awards will be held on Thursday, October 24, 2002. The ceremony and a reception will take place in Washington, D.C. These events are by invitation only.

For more information regarding the Presidential Awards, please contact Annie Haskins of FEMP at 202-586-4536 or annie.haskins@ee.doe.gov.

Mark Your Calendar!

energy@eepponline.com'. It also lists sponsors: 'Sponsored by: U.S. Department of Energy, U.S. Department of Defense, and the U.S. General Services Administration'."/>

Register Now for Florida Water Conservation Workshop

Mark your calendars to attend an intensive two-day program on August 29-30, 2002 in Orlando, Florida. The Florida Water Conservation Workshop for Federal Facilities is designed to provide solutions to reduce water consumption and expenses without compromising facility function. FEMP, the Florida Energy Office, and the General Services Administration (GSA) are sponsoring this workshop in coordination with a number of local sponsors. Attendees will experience fast-paced, topical sessions with speakers from the best of the water management field. Attendees will have the chance to network with Federal and State regulators, industry professionals, and a select group of qualified vendors.

Featured speakers include Mark Ewing, the Director of GSA's Center of Energy Expertise, and Beth Shearer, the Director of FEMP. The target audience for the workshop is personnel who design or manage water supply or conservation efforts at Federal facilities in Florida. State and local government within Florida are also welcome as well as manufacturers and distributors of water conservation equipment, utility companies, engineering and consulting firms, and representatives from industrial facilities in Florida.

Workshop topics include:

- Executive Order 13123 (water conservation, best management practices),
- Florida-specific issues (details from Florida's Water Management Districts),
- Case studies on effective water conservation programs,
- Water reuse and recycling,
- Advanced cooling tower and HVAC equipment management,
- Landscaping (design, plant selection, new irrigation standards), and
- Prioritizing your efforts and developing a program for your site.

To download the workshop flyer or to register, go to www.blsmmeetings.net/workshops/orlando. For more information, please contact Traci Leath of the DOE's Atlanta Regional Office at 404-562-0570 or traci.leath@ee.doe.gov.

U.S. Green Building Council to Host International Green Building Conference

FEMP is pleased to be part of the First Annual International Green Building Conference and Expo, scheduled for November 13-15, 2002 in Austin, Texas. As a Conference Partner, FEMP will help to promote leading edge green technologies in the building industry. The conference is sponsored by the U.S. Green Building Council (USGBC), and is expected to gather 2,000 professionals from the energy and building industries. The Expo will highlight environmentally-friendly and energy-efficient building technologies. More than

170 organizations have signed up to exhibit at the event. The conference also includes green building tours and workshops on the Leadership in Energy and Environmental Design Green Building Rating System (LEED). Beth Shearer, Director of FEMP, is scheduled to discuss energy efficiency in Federal buildings.

For complete conference information, please visit the USGBC web site at www.usgbc.org.

FEMP Training Reminders

FEMP Lights (Self-paced Web course)

August 26-September 23
www.femplights.com
916-962-7001

Florida Water Conservation Workshop for Federal Facilities

August 29-30
Orlando, FL
www.blsm meetings.net/workshops/orlando
404-562-0570

Distributed Energy Resources at Federal Facilities Workshops

September 26-27
Los Angeles, CA
www.eren.doe.gov/femp/techassist/der_resources.html
410-953-6277

Labs 21 High Performance, Low-Energy Design Course

in conjunction with Laboratories for the 21st Century
October 10
Durham, NC
www.epa.gov/labs21century/training/index.htm
781-674-7374

Labs 21 High Performance, Low-Energy Design Course

in conjunction with World Energy Engineering Congress
October 11
Atlanta, GA
www.epa.gov/labs21century/training/index.htm
770-447-5083

FEMP Lights (Advanced) Workshop

October 21-22
Orlando, FL
www.femplights.com
916-962-7001

Utility Energy Services Contracting Workshop

October 22-23
San Diego, CA
703-243-8343

Distributed Energy Resources at Federal Facilities Workshop

October 23-25
Boston, MA
www.eren.doe.gov/femp/techassist/der_resources.html
410-953-6277

Upcoming Events

Upcoming Conferences

Solar Decathlon

September 19-26
Washington, DC
www.eren.doe.gov/solar_decathlon/
303-275-4050

2002 Green Buildings

Open House

October 5, 2002
New England States (check web site for exact locations)
www.nesea.org/buildings/2002openhouse/index.html
877-447-6527. ext 22

Laboratories for the 21st Century Conference

October 7-9
Durham, NC
www.epa.gov/labs21century/conf/conf2002/index.htm
781-674-7374

2002 World Energy Engineering Congress

October 9-11
Atlanta, GA
www.energycongress.com/WEECbody.htm
770-447-5083
(A limited number of free registrations are available from FEMP for Government personnel. Please call 703-465-4647 for details.)

Excellence in Building 2002

October 9-12
Mesa, AZ
www.eeba.org/conference/
952-881-1098

International Energy Efficiency Project Financing Roundtable

October 10-11
Los Angeles, CA
www.naesco.org/conferences.htm
202-822-0954

Departmental Energy Awards Ceremony

October 22
Washington, DC
www.eren.doe.gov/femp/aboutfemp/dept_awards.html
202-586-7632

Federal Energy & Water Management Awards Reception & Awards Ceremony

October 22-23
Washington, DC
www.eren.doe.gov/femp/prodtech/awards/awardsprog.html
202-586-7875

Presidential Awards

October 24
Washington, DC
www.eren.doe.gov/femp/prodtech/awards/awardsprog.html
202-586-4536

First Annual International Green Building Conference & Expo

November 13-15, 2003
Austin, Texas
www.usgbc.org
330-425-9330

FEMP Contacts

For information on topics not listed here, call the FEMP Help Desk at 1-800-363-3732.

FEMP Office: 202-586-5772
FEMP Fax: 202-586-3000
FEMP on the Web: www.eren.doe.gov/femp

Beth Shearer
Director
202-586-5772

Joan Glickman
Special Assistant
202-586-5607
joan.glickman@ee.doe.gov

Schuyler (Skye) Schell
Office Director, Agency Services
202-586-9015
schuyler.schell@ee.doe.gov

Brian Connor
Office Director, Internal Departmental Services
202-586-3756
brian.connor@ee.doe.gov

Helen Krupovich
Weekly Reporting
202-586-9330
helen.krupovich@ee.doe.gov

Ladeane Moreland
Administrative Assistant
202-586-9846
ladeane.moreland@ee.doe.gov

Customer Service, Planning and Outreach

Nellie Greer
Awards Program, Communications
202-586-7875
nellie.tibbs-greer@ee.doe.gov

Annie Haskins
Outreach, FEMP Focus, FEMP Web Site
202-586-4536
annie.haskins@ee.doe.gov

Rick Klimkos
Annual Report, Interagency Coordination
202-586-8287
rick.klimkos@ee.doe.gov

Michael Mills
Policy
202-586-6653
michael.mills@ee.doe.gov

External Service Delivery

Ted Collins
Training Programs, New Technology
Demonstration Program
202-586-8017
theodore.collins@ee.doe.gov

Anne Crawley
Renewable Energy, Greening
202-586-1505
anne.crawley@ee.doe.gov

Danette Delmastro
Super ESPC Program
202-586-7632
danette.delmastro@ee.doe.gov

Beverly Dyer
ENERGY STAR®, Sustainability
202-586-7241
beverly.dyer@ee.doe.gov

Brad Gustafson
Utility Program
202-586-5865
brad.gustafson@ee.doe.gov

Shawn Herrera
Design Assistance, DER, CHP
202-586-1511
shawn.herrera@ee.doe.gov

Ab Ream
ALERT Teams, O&M, Water
202-586-7230
ab.ream@ee.doe.gov

Tatiana Strajnic
Super ESPC Program
202-586-9230
tatiana.strajnic@ee.doe.gov

Alison Thomas
Industrial Facilities, Procurement
202-586-2099
alison.thomas@ee.doe.gov

Departmental Utility and Energy Team

Alan Gann
DOE Utility Management
202-586-3703
alan.gann@ee.doe.gov

Steve Huff
DOE Utility Management, FEMAC
202-586-3507
steven.huff@ee.doe.gov

Will Lintner
Departmental Energy Management, Labs21
202-586-3120
william.lintner@ee.doe.gov

David McAndrew
Green Power, Utility Program
202-586-7722
david.mcandrew@ee.doe.gov

Vic Petrolati
Departmental Energy Management
202-586-4549
victor.petrolati@ee.doe.gov

Will Prue
Departmental Energy Management, SAVEnergy
202-586-4537
wilfred.prue@ee.doe.gov

DOE Regional Office (RO) and Field Office FEMP Team

Doug Culbreth
Atlanta RO
919-782-5238
carson.culbreth@ee.doe.gov

Beth Dwyer
Golden
303-275-4719
beth_dwyer@nrel.gov

Curtis Framel
Seattle RO
206-553-7841
curtis.framel@ee.doe.gov

Melinda Latimer
Chicago RO
312-886-8572
melinda.latimer@ee.doe.gov

Lisa Hollingsworth
Atlanta RO
404-562-0569
lisa.hollingsworth@ee.doe.gov

Arun Jhaveri
Seattle RO - Technical Assistance
206-553-2152
arun.jhaveri@ee.doe.gov

Randy Jones
Denver RO
303-275-4814
randy_jones@ee.doe.gov

Paul King
Boston RO
617-565-9712
paul.king@ee.doe.gov

Claudia Marchione
Philadelphia RO
215-656-6967
claudia.marchione@ee.doe.gov

Cheri Sayer
Seattle RO - Financing
206-553-7838
cheri.sayer@ee.doe.gov

Eileen Yoshinaka
Seattle RO in HI
808-541-2564
eileen.yoshinaka@ee.doe.gov

Principal DOE National Laboratory Liaisons

Bill Carroll
Lawrence Berkeley National Laboratory (LBNL)
510-486-4890
wlcarrroll@lbl.gov

Mary Colvin
National Renewable Energy Laboratory (NREL)
303-384-7511
mary_colvin@nrel.gov

Patrick Hughes
Oak Ridge National Laboratory (ORNL)
865-574-9337
hughespi1@ornl.gov

Paul Klimas
Sandia National Laboratory (SNL)
505-844-8159
pkclima@sandia.gov

Bill Sandusky
Pacific Northwest National Laboratory (PNNL)
509-375-3709
bill.sandusky@pnl.gov

Atlanta Region States

AL, AR, FL, GA, KY, MS, NC, SC, TN, PR, VI

Boston Region States

CT, ME, MA, NH, NY, RI, VT

Chicago Region States

IA, IL, IN, MI, MN, MO, OH, WI

Denver Region States

CO, KS, LA, MT, NE, NM, ND, OK, SD, TX, UT, WY

Philadelphia Region States

DE, DC, MD, NJ, PA, VA, WV

Seattle Region States

AK, AZ, CA, HI, ID, NV, OR, WA, AS, GU, PW, MP

The *FEMP Focus* is published bimonthly by the Federal Energy Management Program of the U.S. Department of Energy/Office of Energy Efficiency and Renewable Energy.

If you are making projects happen at your Federal facility, FEMP would like to hear from you. Please submit project descriptions to Annie Haskins at the address listed below. You will be contacted for additional information if your project is selected to be featured in a future edition of the *FEMP Focus*.

Address mail to:

Attn: FEMP Focus
Federal Energy Management Program
U.S. Department of Energy, EE-90
1000 Independence Avenue, SW
Washington, DC 20585-0121
or e-mail: annie.haskins@ee.doe.gov

**To Change Subscription Information,
Contact:**

Shannon Stanley
McNeil Technologies, Inc.
6564 Loisdale Court, Suite 800
Springfield, VA 22150
703-921-1610 (fax)
sstanley@mcneiltech.com



FEMP Help Line: 1-800-363-3732

Web Site: www.eren.doe.gov/femp

Let Us Send You *FEMP Focus* Via E-mail

FEMP Focus is now available to you by e-mail! More than 600 people receive the *FEMP Focus* electronically, and you can too. When you sign up for the e-mail newsletter, your copy of the *Focus* goes to your e-mail address and you will no longer receive the printed version. Some of the benefits of switching to an e-mail subscription include more timely delivery and sharper graphics and photos. Since less paper and ink are used for the *Focus*, you'll help save energy, money, and valuable natural resources.

If you are interested in *FEMP Focus* via e-mail, visit www.eren.doe.gov/femp/newsevents/whatsnew.html. As always, the *Focus* is complimentary to subscribers.



Printed on recycled paper with soy ink.

**U.S. DEPARTMENT OF ENERGY
FEDERAL ENERGY MANAGEMENT PROGRAM, EE-90
WASHINGTON, DC 20585-0121**

OFFICIAL BUSINESS

**PRESORTED
STANDARD
U.S. POSTAGE
PAID
MERRIFIELD, VA
PERMIT NO. 1635**